

Appl. No. 10/766,515
Amdt. dated December 5, 2005
Reply to Office Action of June 3, 2005

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of object manipulation in a computer system comprises:
displaying a first three-dimensional object and a second three-dimensional object on a display, wherein a three-dimensional object comprises the first three-dimensional object and the second three-dimensional object together, wherein the third three-dimensional object have has an associated first volume;
determining a constraint for the third three-dimensional object, wherein a constraint is not applied to the first three-dimensional object and is not applied to the second three-dimensional object;
displaying a control indicator on the display, wherein the control indicator is associated with ~~both the first three-dimensional object and with the second~~ the third three-dimensional object;
receiving an offset for the control indicator in response to user input with a user input device; and
automatically scaling the first third three-dimensional object and the second three-dimensional object in a first dimension by a first amount in response to the offset of the control indicator, and automatically scaling the first three-dimensional object and the second three-dimensional object in a second dimension by a second amount in response to the offset, the constraint for the third three-dimensional object, and a volume preservation factor to form a modified first third three-dimensional object and a modified second three-dimensional object, wherein the modified first third three-dimensional object and the modified second three-dimensional object together have has an associated second volume;
wherein the associated second volume is determined in response to the volume preservation factor.
2. (Currently amended) The method of claim 1 further comprising:
automatically scaling the first third three-dimensional object and the second three-dimensional object in a third dimension by a third amount in response to the offset and the volume preservation factor;
wherein the modified first third three-dimensional object and the modified second three-dimensional object are is also formed in response to scaling the first third three-dimensional object and the second three-dimensional object in the third dimension.
3. (Original) The method of claim 1 wherein the first volume is substantially similar to the second volume.
4. (Original) The method of claim 1 wherein the second volume is less than the first volume.

Appln. No. 10/766,515
Amdt. dated December 5, 2005
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PATENT

5. (Currently amended) The method of claim 1 wherein the scaling the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the first dimension comprises increasing a size of the ~~first~~ third three-dimensional object and ~~a size of the second three-dimensional object~~ in the first dimension.

6. (Currently amended) The method of claim 5 wherein the scaling the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the second dimension comprises decreasing a size of the ~~first~~ third three-dimensional object and ~~a size of the second three-dimensional object~~ in the first dimension.

7. (Currently amended) The method of claim 1 wherein the scaling the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the first dimension comprises decreasing a size of the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the first dimension; and wherein the scaling the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the second dimension comprises decreasing a size of the ~~first~~ third three-dimensional object and ~~the second three-dimensional object~~ in the second dimension.

8. (Currently amended) The method of claim 7 further comprising: rendering the modified ~~first~~ third three-dimensional object and ~~the modified second three-dimensional object~~ to form a rendered objects object; and storing a representation of the rendered objects object into a memory.

9. (Currently amended) A ~~representation of frame of animation tangible media~~ including the representation of the rendered objects object determined in claim 8.

10. (Currently amended) A computer program product for a computer system including a processor and a display includes:

code that directs the processor to display a representation of a first object and a representation of a second object on the display, wherein the first object has an associated first volume, and the second object has an associated second volume, wherein a third object on the display comprises the first object and the second object and has an associated third volume;

code that directs the processor to determine a volume preservation factor associated with the third object;

code that directs the processor to determine a constraint associated with the third object, wherein the constraint is not associated with the first object or second object;

~~code that directs the processor to associate the first object and the second object;~~

code that directs the processor to receive an indication of a first modification value for the ~~first~~ third object and ~~the second object~~ in a first dimension;

code that directs the processor to modify a size of the first object and a size of the second object in the first dimension in response to the first modification value for the third object;

Appln. No. 10/766,515
Amdt. dated December 5, 2005
Reply to Office Action of June 3, 2005

PATENT

code that directs the processor to determine a second modification value for the first object and the second object in a second dimension in response to the first modification value for the third object, to the constraint associated with the third object and to the volume preservation factor associated with the third object;

code that directs the processor to modify a size of the first object and a size of the second object in the second dimension in response to the second modification value; and

code that directs the processor to display a representation of the first object after modification and the second object after modification on the display;

wherein the first object after modification is associated with a first modified volume;

wherein the first modified volume is determined in response to the volume preservation factor; and

wherein the codes reside on a tangible media.

11. (Original) The computer program product of claim 10
wherein the second object after modification is associated with a second modified volume;

wherein the first volume is approximately equal to the first modified volume; and
wherein the second volume is approximately equal to the second modified volume.

12. (Original) The computer program product of claim 11 wherein the volume preservation factor indicates full volume preservation.

13. (Original) The computer program product of claim 10
wherein the volume preservation factor indicates less than full volume preservation; and

wherein the first modified volume is less than the first volume.

14. (Original) The computer program product of claim 10
wherein code that directs the processor to modify the size of the first object and the size of the second object in the first dimension comprises code that directs the processor to increase the size of the first object and the size of the second object in the first dimension in response to the first modification value; and

Appln. No. 10/766,515
Amdt. dated December 5, 2005
Reply to Office Action of June 3, 2005

PATENT

wherein code that directs the processor to modify the size of the first object and the size of the second object in the second dimension comprises code that directs the processor to decrease the size of the first object and the size of the second object in the second dimension in response to the second modification value.

15. (Original) The computer program product of claim 10 wherein code that directs the processor to modify the size of the first object and the size of the second object in the first dimension comprises code that directs the processor to decrease the size of the first object and the size of the second object in the first dimension in response to the first modification value; and

wherein code that directs the processor to modify the size of the first object and the size of the second object in the second dimension comprises code that directs the processor to increase the size of the first object and the size of the second object in the second dimension in response to the second modification value.

16. (Currently amended) The computer program product of claim 16 wherein code that directs the processor to receive an indication of a first modification value for the first third object and the second object in a first dimension comprises code that directs the processor to receive an indication of a first modification value for the first third object and the second object in a first dimension from a user input device selected from the group consisting of: keyboard, graphical input device, voice input.

17. (Currently amended) A graphical user interface for a computer system includes:

a display portion configured to display a representation of a third three-dimensional object comprising a first three-dimensional object and a second three-dimensional object, wherein the first three-dimensional object has an associated first volume, and wherein the second three-dimensional object has an associated second volume, and wherein the third three-dimensional object has an associated third volume;

a control icon associated with the first third three-dimensional object, wherein a user can specify a modification to the first third three-dimensional object in a first dimension via the control icon; and

wherein the display portion is also configured to display a representation of a modified first third three-dimensional object, wherein the modified first third three-dimensional object comprises the first third three-dimensional object that is modified in the first dimension in response to the modification and that is modified in a second dimension in response to the modification, a constraint associated with the third three-dimensional object, and to a volume

Appln. No. 10/766,515
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preservation value , wherein the constraints are not associated with the first three-dimensional object.

18. (Original) The graphical user interface of claim 17 further comprising a display portion configured to display a currently selected volume preservation value.

19. (Currently amended) The graphical user interface of claim 17 ~~wherein the control icon is also associated with the second three-dimensional object, wherein the user can specify a modification to the second three-dimensional object in a first dimension via the control icon; and~~

~~wherein the display portion is also configured to display a representation of a modified second three-dimensional object, wherein the modified second three-dimensional object comprises the second three-dimensional object that is modified in the first dimension in response to the modification and that is modified in the second dimension in response to the modification and to the volume preservation value.~~

wherein the constraint are not associated with the second three-dimensional object; and

wherein the constraint is selected from a group consisting of: profile constraint, and dimension constraint.

20. (Currently amended) The graphical user interface of claim 19 wherein the modification to the first third three-dimensional object in the first dimension comprises a modification selected from the group consisting of: lengthening, shortening; and

wherein the modification to the ~~first~~ third three-dimensional object is in the second dimension comprises a modification respectively selected from the group consisting of: shortening, lengthening.

21. (Currently amended) The graphical user interface of claim 19 wherein the modified ~~first~~ third three-dimensional object comprises the ~~first~~ third three-dimensional object that is modified in the first dimension in response to the modification, that is modified in a second dimension in response to the modification and , to the volume preservation value and to the constraint, and that is modified in a third dimension in response to the modification and to the volume preservation value.